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2000.02.14 2000-1006462(+2000DE-1006462) *(2001.08.16)* C12N 15/61, A01H 5/00, C12N 5/10, C12P 19/24, C12N 15/82, 9/90

New recombinant nucleic acid molecule encoding a sucrose isomerase isolated from Erwinia rhapontici useful to produce non-cariogenic sugars in transgenic plants (Ger)

C2001-158037 N(AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW) R(AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW)

Addnl. Data: BOERNKE F, SONNEWALD U
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C(4-A8C2E, 4-C1G, 4-E3E, 4-E8, 4-F1E, 4-F8E, 4-L7E, 4-N1AE, 7-A2) D(5-C3F, 5-C8, 5-H12A, 5-H12E, 5-H14, 5-H14B3, 5-H16B, 5-H17A3) .9

NOVELTY

A recombinant nucleic acid molecule, comprising regulatory sequence of a plant active promoter operably linked to a DNA sequence encoding a protein with the enzyme activity of a sucrose isomerase and to plant transcription termination and/or polyadenylation signal, is new.

DETAILED DESCRIPTION

INDEPENDENT CLAIMS are also included for the following:
(1) a vector comprising the novel nucleic acid molecule;
(2) a host cell comprising the novel nucleic acid or vector of (1);
(3) producing the novel nucleic acid or vector of (1), comprising transmitting the nucleic acid or vector to a plant cell, and preferably regenerating a transgenic plant;
(4) a transgenic plant comprising the novel nucleic acid or vector of (1), or produced by the method of (3)l
(5) parts of the plant of (4), its transgenic products, and protoplasts, plant cells, callus, seeds, tubers or descendents; and
(6) obtaining palatinose from plants by crystallization

USE

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For producing non-cariogenic sugars in transgenic plants.

ADVANTAGE

None given.

EXAMPLE

cDNA encoding sucrose isomerase from *Erwinia rhapontici* was cloned and plasmid pB33cwIso (B33 = promoter of class I patatin gene B33, cw = cell wall, Iso = sucrose isomerase) was constructed using standard techniques throughout. The soluble sugar content of transgenic potato tubers carrying the constructs pB33cwIso 5, pB33cwIso17 or pB33cwIso 23 was determined. Control plants contained 4.97, 0.09. 17.7 and 0 micro mol/g fresh weight of glucose, fructose, sucrose and palatinose, respectively, whilst plants carrying the constructs contained 0.45-0.84, 0.27 -0.55, 1.5 - 2.6 and 70.5 - 89.6 micro mol/g fresh weight of glucose, fructose, sucrose and palatinose, respectively.

TECHNOLOGY FOCUS

Biotechnology - Preferred Nucleic Acid: The nucleic acid comprises:
(a) a sequence encoding the 600 amino acid sequence, fully defined in the specification;
(b) all or part of the 1803 base pair sequence fully defined in the specification;
(c) a sequence complementary to (a) or (b);
(d) a degenerate of (c); or
(e) a derivative, analog or fragment of (a), (b) or (c).
The promoter is organ-specific, preferably seed or fruit specific, and inducible, preferably by a chemical. The nucleic acid further comprises a signal sequence for transport of the enzyme to a specific cell compartment or organelle, preferably the apoplast.
(30pp2526DwgNo.0/5)